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WILMERHALE/BOSTON			WARTALOWICZ, PAUL A	
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BOSTON, MA 02109			PAPER NUMBER	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/758,710

**Applicant(s)**

RUPICH ET AL.

**Examiner**

PAUL A. WARTALOWICZ

**Art Unit**

1793

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7, 9-18 and 70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-18 and 70 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed 9/19/08 have been fully considered but they are not persuasive.

Applicant argues that the materials and methods disclosed in both Weinstein and Babu rely on the presence of materials in addition to the amount needed to form an oxide superconductor and that Weinstein and Babu do not suggest formation of an oxide superconductor film containing a dopant metal, much less one that serves as pinning sites.

However both Weinstein and Babu teach pinning sites as explained in the rejection. Weinstein teaches that the element creating the defect is a rare earth, eg. Sm. Babu teach that the material in the defect pinning sites is a rare earth, eg. Sm. These elements are substantially similar to those described in the instant specification.

It appears that applicant is arguing that the amount of dopant the prior art uses is different from that instantly claimed. However Weinstein teach that the amount of the additive is 2ppm to 6%. This appears to meet the instantly claimed limitations.

Applicant argues that instant claims 12-17 are further distinguished over the cited art in that it does not teach or suggest the instantly claimed ramp rates of "about greater than 25°C per minute".

However one of ordinary skill in the art would recognize that the ramp rate to form the intermediate film would be substantially similar for the heating step to form the superconductor.

Applicant argues that bulk and thin film properties of high performance superconducting oxides can vary significantly and that there is no expectation that an observation made in a bulk oxide superconductor material would be transferable to a thin film oxide superconductor.

However the Jin taught advantages in the bulk oxide due to the pinning sites (improvement of  $J_c$  observed when yttrium is partially substituted with some of the rare earth elements) would motivate one skilled in the art to use the instantly claimed amount of dopant in Riley because advantageous properties in thin films is high if reported for the same material in bulk form as taught by Jin.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 4-7, 9-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riley (WO 01/08169) in view of any one of Weinstein (U.S. 6525002) and Babu (New chemically stable...).

Riley teach a process of disposing a precursor solution onto a biaxially textured substrate (page 7) to form a precursor film wherein the precursor components comprise an organic solution of metal trifluoroacetates prepared from powders of salts of barium, yttrium, and copper wherein after application, the precursor is heat treated to a temperature of 300-500°C (page 19) at a rate of at least 5°C per minute (page 22) wherein the intermediate film is heated at a temperature of 700-825°C in the claimed environment (page 22).

Riley fail to teach that a dopant comprising a metal compound is in the precursor solution that is capable of replacing one or more of the rare earth and alkaline earth metal of the rare-earth/alkaline-earth/transition metal oxide.

Weinstein teach a process for making superconductors (col. 1) wherein the precursor superconducting material includes a metallic compound suitable for forming of pinning sites (col. 5-6).

Babu teach a process for making superconductors (page L44) wherein precursor salts are mixed with an additive and thoroughly mixed and then calcined to provide nano-sized pinning centers (page L44).

It would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide the precursor superconducting material

includes a metallic compound in Riley in order to form pinning sites as taught by either Weinstein or Babu.

Regarding claims 4 and 5, Weinstein teach that the amount of the additive is 2 ppm to 6%. This appears to meet the instantly claimed limitations.

Regarding claim 18, the prior art teach a substantially similar process as that instantly claimed such that the properties resulting from the prior art process are substantially similar to those instantly claimed, including orientation.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riley (WO 01/08169) in view of any one of Weinstein (U.S. 6525002) and Babu (New chemically stable...) and Jin (Superconducting properties of...).

Riley teaches a method of making a superconductor as described above.

Riley fails to teach the instantly claimed amount of dopant.

Jin teach a method of making superconductors (page 75) wherein 20% of rare earth elements are substituted with additional elements (page 76) for the purpose of raising the Jc (page 78).

It would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide substitution of 20% of rare earth elements with additional elements in Riley in order to raise the Jc as taught by Jin.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Riley (WO 01/08169) in view of any one of Weinstein (U.S. 6525002) and Babu (New chemically stable...) and Feenstra (U.S. 5972847).

Riley teach a process for making a superconductor as described above.

Riley fail to teach that the oxide superconductor is biaxially oriented and that the oxide superconductor has a c-axis orientation that is substantially constant across its width, the c-axis orientation of the oxide superconductor being substantially perpendicular to the surface of the substrate.

Feenstra teach a method for making superconductors (col. 1) wherein it is known that biaxial texture is required to obtain high transport critical current densities (col. 1). Also taught is that the most favorable YBCO orientation is with c-axis perpendicular to the substrate (col. 4).

Riley teach that a-axis oriented grains should be minimized (page 27).

It would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide biaxial textured superconductors and c-axis perpendicular to the substrate in Riley for the purpose of obtaining high transport critical current densities the most favorable YBCO orientation is with c-axis perpendicular to the substrate as taught by Feenstra. Additionally, one would be motivated to provide c-axis orientation constant as Riley teach that a-axis oriented grains should be minimized.

Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over Riley (WO 01/08169) in view of any one of Weinstein (U.S. 6525002) and Babu (New

chemically stable...) and Jin (Superconducting properties of...) and McDevitt (U.S. 5591696).

Riley fail to teach that the dopant is holmium.

McDevitt teach that yttrium is replaced with a lanthanide for the purpose of providing corrosion resistance (col. 3).

Holmium is a well known lanthanide.

It would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide yttrium replaced with holmium in Riley in order to provide corrosion resistance as taught by McDevitt and because holmium is a well known lanthanide.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL A. WARTALOWICZ whose telephone number is (571)272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Paul Wartalowicz

Application/Control Number: 10/758,710

Page 9

Art Unit: 1793

December 31, 2008

/Steven Bos/  
Primary Examiner  
A.U. 1793